AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application. Please amend the claims, as follows:

1-20   (Canceled)

21.   (Previously Presented) A method for configuring a communication network having a plurality of antennas comprising the steps of:

a)   including in said plurality of antennas at least one reconfigurable antenna adapted to serve communication traffic in a respective coverage area, said reconfigurable antenna having a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, each direction in said set defining a propagation path between the antenna and a portion of said coverage area;

b)   determining, for each direction in said set, at least one value of communication traffic and at least one attenuation value over said propagation path; and

c)   selectively and independently allotting to each direction in said set a respective gain value in the radiation diagram of said reconfigurable antenna as a function of said at least one of said traffic value (T_{pixel}) and of said attenuation value (a_{pixel}) determined for said direction.

22. (Previously Presented) The method of claim 21, wherein said gain value for each said direction is allotted as the gain maximising a ratio of said traffic value to said attenuation value,

23. (Previously Presented) The method of claim 21, wherein said gain value for each said direction is allotted as the gain optimising a cost function ($f(a_0)$) wherein said traffic value and said attenuation value represent benefit and cost factors, respectively.

24. (Previously Presented) The method of claim 21, comprising the steps of:

subdividing said coverage area of said at least one reconfigurable antenna in a plurality of portions each including a plurality of pixels, wherein each said pixel has an associated value of communication traffic (T_{pixel}) and a propagation path from said antenna with an associated attenuation value, (a_{pixel}), whereby each said pixel has an associated benefit/cost ratio being the ratio of said associated communication traffic value (T_{pixel}) to said associated attenuation value (a_{pixel});

defining an optimisation function for all the pixels within a given portion depending on said benefit/cost ratio for the pixels in said portion; and

allotting to the direction in said radiation diagram identifying each said portion a respective gain value optimising said optimisation function.

25. (Previously Presented) The method of claim 24, wherein each said pixel having associated a given value of attenuation, and a_{min} being the minimum value of the

values of attenuation for all the pixels in said given portion, said optimisation function is

defined as

$f(a_o) = (1/a_o)\Sigma\ T_{pixel}/a_{pixel}$

where the summation extends for a_{pixel} from a_{min} to a_0 over all the pixels in a

given portion of said coverage area, and T_{pixel}/a_{pixel} is said benefit/cost ratio.

26.   (Previously Presented) The method of claim 21, comprising the steps of:

selecting said at least one reconfigurable antenna as an antenna having a

maximum gain value (G_{max});

determining for each direction in said set a respective attenuation value (a_{mi}) to

be compensated by a respective gain value in said radiation diagram, said attenuation

values having a maximum (A_{max}); and

associating with said direction in said radiation diagram gain values based on the

relationship:

$G_{mi} = G_{max} - (A_{max} - a_{mi})$, wherein G_{max} is said maximum gain, A_{max} is said

maximum of attenuation and a_{mi} is the attenuation value determined for the direction to

which the gain G_{mi} is assigned.

27.   (Previously Presented) The method of claim 21, comprising the steps of:

determining a field intensity value (E_{min}) required to provide said communication

traffic over the area covered by the radiation diagram of said at least one reconfigurable

antenna;

determining a power value (P_{feed}) for said antenna to provide said field value

(E_{min}),

comparing said power value determined (P_{feed}) with a maximum threshold value;

and

if said power value as determined (P_{feed}) exceeds said maximum threshold value,

issuing a signal indicating that the antenna is to be relocated.

28.   (Previously Presented) The method of claim 21, comprising the steps of:

configuring said network as a step of planning a still undeployed network; and

determining said respective value of communication traffic (T_{pixel}) as a planned

parameter of said still undeployed network.

29.   (Previously Presented) The method of claim 21, comprising the steps of:

configuring said network as a step of managing an already existing network; and

determining said respective value of communication traffic (T_{pixel}) as at least one

of a forecast parameter and a measured parameter of said already existing network.

30.   (Previously Presented) A method for configuring a communication

network including a plurality of antennas each serving a respective amount of traffic

within a respective coverage area, comprising the steps of:

determining a reference amount of traffic (T_m) served by said plurality of antennas

in the network;

setting at least one difference threshold with respect to said reference amount of traffic (T_m);

identifying among said plurality of antennas a subset of antennas, wherein the respective amounts of traffic served by the antennas in said subset reach said difference threshold; and

configuring the antennas in said subset as reconfigurable antennas, each having a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, each direction in said set defining a propagation path between the antenna and a portion of said coverage area; and

applying to the reconfigurable antennas in said subset the steps b) and c) of claim 21 to reconfigure said network.

31.   (Previously Presented) The method of claim 30, comprising the step of defining said reference amount of traffic as the average amount of traffic (T_m) served by said plurality of antennas.

32.   (Previously Presented) The method of claim 30, comprising the step of checking the performance level of said reconfigured network.

33.   (Previously Presented) The method of claim 32, comprising the steps of:

defining at least one criterion for satisfactory performance level of said network;

checking the performance level of said reconfigured network against said criterion; and

if said checking reveals that said performance level fails to meet said criterion,

taking at least one of the steps of:

varying said reference amount of traffic (T_m),

increasing the number of said reconfigurable antennas in said subset, and

increasing the total number of antennas in the network.

34.   (Previously Presented) A network architecture for a communication

network including a plurality of antennas comprising:

at least one reconfigurable antenna adapted to serve communication traffic in a

respective coverage area, wherein

said at least one reconfigurable antenna has a radiation diagram exhibiting a

plurality of selectively adjustable gain values for a set of directions, and wherein

each direction in said set

defines a propagation path between the antenna and a portion of said

coverage area, and

has associated

at least one value of communication traffic (T_{pixel}) and at least one

attenuation value (a_{pixel}) over said propagation path, and

a respective gain value for said radiation diagram which is a

function of at least one of said traffic value (T_{pixel}) and of said attenuation

value (a_{pixel}).

35. (Previously Presented) The network architecture of claim 34, wherein said gain value for each said direction is the gain maximising a ratio of said traffic value to said attenuation value.

36. (Previously Presented) The network architecture of claim 34, wherein said gain value for each said direction is the gain optimising a cost function $(f(a_0))$ wherein said traffic value and said attenuation value represent benefit and cost factors, respectively.

37. (Previously Presented) The network architecture of claim 34, wherein said coverage area of said at least one reconfigurable antenna is subdivided in a plurality of portions each including a plurality of pixels, wherein each said pixel has an associated value of communication traffic (T_{pixel}) and a propagation path from said antenna with an associated attenuation value (a_{pixel}), whereby each said pixel has an associated benefit/cost ratio being the ratio of said associated communication traffic value (T_{pixel}) to said associated attenuation value (a_{pixel}).

for all the pixels within a given portion an optimisation function exists depending on said benefit/cost ratio for the pixels in said portion, and

said gain value for each said direction is the gain optimising said function.

38. (Previously Presented) The network architecture of claim 37, wherein each said pixel having associated a given value of attenuation and a_{min} is the minimum

value of the values of attenuation for all the pixels in said given portion, said

optimisation function being defined as

$$f(a_o) = (1/a_o)\Sigma \, T_{pixel}/a_{pixel}$$

where the summation extends for a_{pixel} from a_{min} to a_0 over all the pixels in a

given portion of said coverage area, wherein T_{pixel}/a_{pixel} is said benefit/cost ratio.

39.   (Previously Presented) The network architecture of claim 34, wherein

said at least one reconfigurable antenna is an antenna having a maximum gain

value (G_{max}), and wherein for each direction in said set a respective attenuation value

(a_{mi}) exists to be compensated by a respective gain value in said radiation diagram, said

attenuation values having a maximum (A_{max}), and

each said direction in said radiation diagram has an associated gain value G_{mi}

based on the relationship:

$G_{mi} = G_{max} - (A_{max} - a_{mi})$, wherein G_{max} is said maximum gain value, A_{max} is said

maximum attenuation and a_{mi} is an attenuation value determined for the direction to

which the gain value G_{mi} is assigned.

40.   (Currently Amended) A computer program product capable of being

loadable in the memory of at least one computer and including software code portions

for performing the a method of configuring a communication network having a plurality

of antennas, the method comprising the steps of:

a)   including in said plurality of antennas at least one reconfigurable antenna

adapted to serve communication traffic in a respective coverage area, said

reconfigurable antenna having a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, each direction in said set defining a propagation path between the antenna and a portion of said coverage area;

b)   determining, for each direction in said set, at least one value of communication traffic and at least one attenuation value over said propagation path; and

c)   selectively and independently allotting to each direction in said set a respective gain value in the radiation diagram of said reconfigurable antenna as a function of said at least one of said traffic value (T_{pixel}) and of said attenuation value (a_{pixel}) determined for said direction.   ~~any one of claims 21 to 33.~~

Please add the following new claims 41-52:

41. (New)   A method for configuring a communication network including a plurality of antennas, the method comprising:

including in said plurality of antennas at least one reconfigurable antenna adapted to serve communication traffic in a respective coverage area, said reconfigurable antenna having a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, each direction in said set defining a propagation path between the antenna and a portion of said coverage area, each portion including a plurality of pixels, wherein each pixel has an associated value of communication traffic and a propagation path from said antenna with an associated attenuation value;

determining, for each direction in said set, a reference attenuation value over the propagation path defined by the direction, said reference attenuation value depending on a benefit/cost ratio for the pixels included in said portion, said benefit/cost ratio being a ratio between said communication traffic value and said attenuation value in each said pixel;

determining a maximum attenuation value (A_{max}) of said reference attenuation values (a_{mi}) associated with each direction;

determining a maximum gain value (G_{max}) of said radiation diagram of said at least one reconfigurable antenna in said coverage area;

associating said maximum gain value with the direction having said maximum attenuation value; and

determining for the other directions a respective gain value (G_{mi}) in the radiation diagram of said reconfigurable antenna based on the relationship

$$G_{mi} = G_{max} - (A_{max} - a_{mi}).$$

42. (New)   The method of claim 41, wherein said reference attenuation value corresponds to the attenuation value that maximizes an optimization function ($f(a_0)$) defined as:

$f(a_0)= (1/a_0)\Sigma\ T_{pixel}/a_{pixel}$

where T_{pixel}/a_{pixel} is said benefit/cost ratio and the summation extends from an attenuation value a_{min} to an attenuation value a_0 over all the pixels included in said portion of said coverage area, said attenuation value a_{min} being the minimum value of the values of attenuation for all the pixels included in said portion.

43. (New)   The method of claim 41, further comprising:

determining a field intensity value required to provide said communication traffic

over the area covered by the radiation diagram of said at least one reconfigurable

antenna;

determining a power value for said antenna to provide said field value;

comparing said power value determined with a maximum threshold value; and

if said power value as determined exceeds said maximum threshold value,

issuing a signal indicating that the antenna is to be relocated.

44. (New)   The method of claim 41, further comprising:

configuring said network as a step of planning a still undeployed network; and

determining said value of communication traffic as a planned parameter of said

still undeployed network.

45. (New)   The method of claim 41, further comprising:

configuring said network as a step of managing an already existing network; and

determining said value of communication traffic as at least one of a forecast

parameter and a measured parameter of said already existing network.

46. (New)   A method for configuring a communication network including a

plurality of antennas each serving a respective amount of traffic within a respective

coverage area, the method comprising:

determining a reference amount of traffic served by said plurality of antennas in the network;

setting at least one difference threshold with respect to said reference amount of traffic;

identifying among said plurality of antennas a subset of antennas, wherein the respective amounts of traffic served by the antennas in said subset reach said difference threshold;

configuring the antennas in said subset as reconfigurable antennas, each having a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, each direction in said set defining a propagation path between the antenna and a portion of said coverage area; and

applying to the reconfigurable antennas in said subset the following steps to reconfigure said network:

determining, for each direction in said set, a reference attenuation value over the propagation path defined by the direction, said reference attenuation value depending on a benefit/cost ratio for the pixels included in said portion, said benefit/cost ratio being a ratio between a communication traffic value and an attenuation value in each said pixel; and

determining a maximum attenuation value of said reference attenuation values associated with each direction.

47. (New)   The method of claim 46, further comprising:

defining said reference amount of traffic as the average amount of traffic served by said plurality of antennas.

48. (New)   The method of claim 46, further comprising:

checking the performance level of said reconfigured network.

49. (New)   The method of claim 48, further comprising:

defining at least one criterion for satisfactory performance level of said network;

checking the performance level of said reconfigured network against said criterion; and

if said checking reveals that said performance level fails to meet said criterion, taking at least one of the steps of:

varying said reference amount of traffic,

increasing the number of said reconfigurable antennas in said subset, and

increasing the total number of antennas in the network.

50. (New)   A network architecture for a communication network including a plurality of antennas, the network architecture comprising:

at least one reconfigurable antenna adapted to serve communication traffic in a respective coverage area,

wherein said at least one reconfigurable antenna has a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, and wherein each direction in said set:

defines a propagation path between the antenna and a portion of

said coverage area, said portion including a plurality of pixels, wherein

each pixel has an associated value of communication traffic and a

propagation path from said antenna with an associated attenuation value,

and

has associated:

a reference attenuation value over the propagation path

defined by the direction, said reference attenuation value

depending on a benefit/cost ratio for the pixels included in said

portion, said benefit/cost ratio being a ratio between said

communication traffic value and said attenuation value in each said

pixel, and

a respective gain value (G_{mi}), said respective gain value

being determined by means of the relationship

$G_{mi} = G_{max} - (A_{max} - a_{mi})$ where A_{max} is a maximum attenuation value

of said reference attenuation values (a_{mi}) associated with each

direction in said coverage area and G_{max} is the maximum gain value

of said radiation diagram of said at least one reconfigurable

antenna associated with the direction having said maximum

attenuation value.

51. (New)   The network architecture of claim 50, wherein said reference

attenuation value corresponds to the attenuation value that maximises an optimization

function ($f(a_0)$) defined as:

$f(a_0)= (1/a_0)\Sigma\ T_{pixel}/a_{pixel}$

where T_{pixel}/a_{pixel} is said benefit/cost ratio and the summation extends from an

attenuation value a_{min} to an attenuation value a_0 over all the pixels included in a given

portion of said coverage area, said attenuation value a_{min} being the minimum value of

the values of attenuation for all the pixels included in said given portion.

52. (New)   A computer program product loadable in the memory of at least one

computer and including software code portions for performing a method of configuring a

communication network including a plurality of antennas, the method comprising:

including in said plurality of antennas at least one reconfigurable antenna

adapted to serve communication traffic in a respective coverage area, said

reconfigurable antenna having a radiation diagram exhibiting a plurality of selectively

adjustable gain values for a set of directions, each direction in said set defining a

propagation path between the antenna and a portion of said coverage area, each

portion including a plurality of pixels, wherein each pixel has an associated value of

communication traffic and a propagation path from said antenna with an associated

attenuation value;

determining, for each direction in said set, a reference attenuation value over the

propagation path defined by the direction, said reference attenuation value depending

on a benefit/cost ratio for the pixels included in said portion, said benefit/cost ratio being

a ratio between said communication traffic value and said attenuation value in each said pixel;

determining a maximum attenuation value (A_{max}) of said reference attenuation values (a_{mi}) associated with each direction;

determining a maximum gain value (G_{max}) of said radiation diagram of said at least one reconfigurable antenna in said coverage area;

associating said maximum gain value with the direction having said maximum attenuation value; and

determining for the other directions a respective gain value (G_{mi}) in the radiation diagram of said reconfigurable antenna based on the relationship

$$G_{mi} = G_{max} - (A_{max} - a_{mi}).$$